

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Implementation of Sections 716 and 717 of
the Communications Act of 1934, as Enacted
by the Twenty-First Century Communications
and Video Accessibility Act of 2010

Entertainment Software Association

Petition for Class Waiver of Sections 716 and
717 of the Communications Act and Part 14
of the Commission's Rules Requiring Access
to Advanced Communications Services (ACS)
and Equipment by People with Disabilities

CG Docket No. 10-213

**MID-YEAR STATUS REPORT OF
THE ENTERTAINMENT SOFTWARE ASSOCIATION**

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INTRODUCTION AND SUMMARY

In December 2017, the Consumer and Governmental Affairs Bureau issued a final 12-month extension of the class waiver of the Advanced Communications Service (“ACS”) rules for video game software.¹ In so doing, the Bureau found that “extension of the waiver will serve the public interest, in that it will enable the continued exploration of solutions” to the “ongoing accessibility challenges” unique to video game software.² The Bureau noted that it expected the industry to continue its engagement with the disability community for this purpose,³ and also directed the Entertainment Software Association (“ESA”) to submit a report halfway through the current waiver period that “inform[s] both the Commission and the public about the gaming industry’s progress on . . . remaining accessibility challenges, as well as new solutions that become available to provide accessible ACS.”⁴

This report provides the updated information requested by the *2017 Waiver Order*.⁵ As discussed below, while ACS accessibility in video games still presents substantial technical challenges, the industry continues to make meaningful progress. Industry efforts in the first half of the waiver period include an updated accessibility plug-in for a popular game engine, an innovative alternative input device for gamers with limited mobility, implementation of technology developed by Microsoft Corporation that enables real-time speech-to-text translation and text-to-speech reading of typed text in audio game chat, and increased use of

¹ *Implementation of Sections 716 and 717 of the Communications Act of 1934, as Enacted by the Twenty-First Century Communications and Video Accessibility Act of 2010 et al.*, Order, 32 FCC Rcd. 10448 (2017) (“*2017 Waiver Order*”).

² *Id.* ¶ 9.

³ *Id.* ¶ 14.

⁴ *Id.*

⁵ *See id.*

communications methods that do not rely on speech. Members have continued to invest in and investigate general accessibility features and emerging technologies as well.

In addition, as the Bureau anticipated, the industry has continued its outreach and consultation with members of the disability community. ESA and member companies have met with accessibility advocates and gamers with disabilities, co-sponsored accessibility events in connection with the 2018 Game Developers Conference, and conducted outreach as part of the 2018 Electronic Entertainment Expo (“E3”), the largest game expo of the year. ESA and its members are committed to long-term engagement with the disability community.

I. THE VIDEO GAME INDUSTRY HAS MADE PROGRESS ON ACCESSIBILITY.

The *2017 Waiver Order* seeks information about the “efforts, innovations, and progress that ESA members have made toward addressing technical challenges and developing accessibility features” during the first half of the waiver period.⁶ As the Bureau has recognized, while the unique nature of video game software creates substantial “ongoing accessibility challenges,” the industry has also made meaningful progress on accessibility.⁷ This progress has continued in the current waiver period.

A. The Game Industry Continues to Address Technical Challenges with ACS.

The accessibility challenges unique to the video game industry have been well-documented in this proceeding.⁸ For example, in the *2017 Waiver Order*, the Bureau recognized that the industry faces challenges in large measure because (1) “video games require highly

⁶ *Id.*

⁷ *Id.* ¶¶ 9-13.

⁸ *See, e.g.*, Mid-Year Status Report of the Entertainment Software Association at 8-11, CG Docket No. 10-213 (filed June 30, 2017) (“2017 Mid-Year Report”); Petition of the Entertainment Software Association for Extension of Waiver at 9-12, CG Docket No. 10-213 (filed Oct. 27, 2017) (“2017 Petition for Waiver”).

specialized code for the simultaneous integration of physics, animation, graphics, audio, and other specialized functions that are not necessary for other forms of computer software that are capable of receiving and displaying information in a standardized, linear fashion”; (2) “assistive technologies, which work with standardized user interfaces and controls, are rarely used for video game accessibility,” in part because video games involve specialized interactions with hardware “that are not typically used for common computing tasks or ACS”; and (3) “players use ACS in video games” in unique ways, resulting in “factors such as ‘speech disfluency,’ the use of ‘game-specific terms or slang,’ variable sound quality, and overlapping game conversations”⁹ As the Bureau anticipated, however, the industry has been using the current waiver period to continue exploring innovative solutions and approaches to address accessibility challenges.¹⁰

In order for ACS to be accessible, game elements such as menu systems that the player uses to access ACS must also be accessible. The industry is making progress on that front. For example, Unity is a popular game engine—i.e. a software development platform specifically tailored for game creation—used by several ESA members.¹¹ Because games developed in Unity rely on highly specialized code, they are unable to implement an operating system’s native user interface elements and, therefore, cannot take advantage of general-purpose OS-level accessibility features such as built-in screen readers. However, earlier this year, MetalPop

⁹ 2017 Waiver Order ¶ 9.

¹⁰ See *id.*

¹¹ See Unity, <https://unity3d.com/> (last visited June 29, 2018).

Games released version 1.0.3 of an accessibility plug-in for the Unity game engine specifically designed to help make game elements accessible for individuals with visual disabilities.¹²

The Unity Accessibility Plugin (“UAP”) provides screen reader functionality by enabling developers of 2D games to identify and describe user interface elements. These elements can then be output to the OS’s text-to-speech feature.¹³ In addition, UAP provides a means of navigating apps and menus via gestures, similar to the functionality provided by screen readers such as TalkBack on Android or VoiceOver on iOS.¹⁴ Thus, UAP could significantly improve the ability of games using the Unity engine to be accessible for gamers with vision loss.

The game industry continues to make progress on screen reader technology on console and other platform experiences. In April, Microsoft added the ability to adjust the volume of Narrator (Xbox’s free preinstalled screen reader) independently from system audio volume.¹⁵ Narrator also now features an “input learning mode” that will verbalize the name of the button that the user presses on his or her input device.¹⁶ In addition, Electronic Arts’ (“EA’s”) Origin platform now includes a text-to-speech function that reads aloud any received chat messages on the platform.¹⁷

¹² See Unity Asset Store, *MetalPop Games: UI Accessibility Plugin (UAP)*, <https://assetstore.unity.com/packages/tools/gui/ui-accessibility-plugin-uap-87935> (last visited June 29, 2018).

¹³ See MetalPop, *Overview: Unity UI Accessibility Plugin –Basic Tutorial*, <http://www.metalpopgames.com/assetstore/accessibility/doc/index.html> (last visited June 29, 2018).

¹⁴ MetalPop, *UAP: Navigation on the Play Grid*, <http://www.metalpopgames.com/assetstore/accessibility/doc/Navigation.html> (last visited June 29, 2018).

¹⁵ See Will Tuttle, *The April Xbox Update Begins Rolling Out Today*, Xbox Wire (Apr. 24, 2018, 12:00 PM), <https://news.xbox.com/en-us/2018/04/24/xbox-april-update/>.

¹⁶ *Id.*

¹⁷ See EA Answers HQ, *Origin Spotlight –January Updates*, <https://answers.ea.com/t5/General-Discussion/Origin-Spotlight-January-Updates/td-p/6646345> (last visited June 29, 2018).

The industry is also examining new ways to accommodate alternative input methods for gamers with limited mobility, again with a view to make both navigation of the system and game play more enjoyable. For example, Microsoft recently announced the Xbox Adaptive Controller—an accessory intended to make games accessible to people with limited mobility.¹⁸ Microsoft worked with numerous organizations and gamers with disabilities over several years, including The AbleGamers Charity,¹⁹ Cerebral Palsy Foundation,²⁰ Craig Hospital,²¹ SpecialEffect,²² and Warfighter Engaged²³ to develop the controller, which will be available later this year.

The Xbox Adaptive Controller features large programmable buttons and connects to a wide array of external switches such as buttons, pressure sensitive tubes, and proximity sensors, as well as joysticks and mounts to help make gaming more accessible.²⁴ This creates an opportunity for third-party input developers to design new and innovative 3.5 mm and USB 2.0 supported solutions tailored to the needs of specific disabilities so gamers have access to a controller experience that's right for them. As accessibility advocate Steven Spohn explains, even makers of other types of hardware could develop solutions for the Xbox Adaptive

¹⁸ Deborah Bach, *Plugged In*, Microsoft Story Labs (May 16, 2018), <https://news.microsoft.com/stories/xbox-adaptive-controller/>.

¹⁹ The AbleGamers Charity, <http://www.ablegamers.org/> (last visited June 29, 2018).

²⁰ Cerebral Palsy Foundation, <http://yourcpf.org/> (last visited June 29, 2018).

²¹ Craig Hospital, <https://craighospital.org/> (last visited June 29, 2018).

²² SpecialEffect, <https://www.specialeeffect.org.uk/> (last visited June 29, 2018).

²³ Warfighter Engaged, <http://www.warfighterengaged.org/> (last visited June 29, 2018).

²⁴ See Chelsea Stark and Samit Sarkar, *Microsoft's New Xbox Controller Is Designed Entirely for Players with Disabilities* (May 17, 2018, 1:00 AM), <https://www.polygon.com/2018/5/17/17363528/xbox-adaptive-controller-disability-accessible>; Exhibit A-1 (depicting Xbox Adaptive Controller); Ian Sherr, *Microsoft's New Xbox Controller Puts Disabled Players Back in the Game*, CNET (May 18, 2018, 5:00 AM), <https://www.cnet.com/news/microsoft-has-a-new-xbox-adaptive-controller-designed-to-help-disabled-people-play/>.

Controller: “I can take the switches that are on my wheelchair, and I can turn them from the thing that makes my wheelchair go forward, to the thing that lets me shoot the bad guys in a video game.”²⁵ The controller also supports Microsoft’s “Copilot” feature, introduced last year, which enables gamers to link two controllers to perform the functions of a single controller, thus enabling a number of new options for individuals who require unique configurations to manipulate controls.²⁶ The Copilot feature itself, introduced last year for the Xbox One console, is also now available for game play on Windows 10 PCs.

Microsoft also recently announced a series of eye-tracking APIs to enable users to control software by looking at on-screen objects.²⁷ Any application, including games, can take advantage of these APIs to allow control of UI elements or provide more immersive experiences. Additionally, Microsoft wrote a plug-in for the Unity game engine that allows eye gaze input to be processed by Universal Windows Platform (“UWP”) games that use the Unity game engine.²⁸

Moreover, at this year’s CSUN Assistive Technology Conference in March, Sony Interactive Entertainment (“SIE” or “Sony”) set up demos and provided information regarding a wide variety of first party and licensed peripherals and controllers that consumers with different disabilities could utilize on the PlayStation platform.

²⁵ See Jez Corden, *How AbleGamers Aims to Bring Gaming to Those with Disabilities*, Windows Central (June 5, 2018), <https://www.windowscentral.com/ablegamers-xbox-adaptive-controller-interview>.

²⁶ See 2017 Mid-Year Report at 13.

²⁷ Jacob Cohen, *How to Create Accessible Apps and Immersive Game Experiences with New Eye Tracking APIs*, Microsoft (May 8, 2018, 2:00 PM), <https://blogs.windows.com/buildingapps/2018/05/08/how-to-create-accessible-apps-and-immersive-game-experiences-with-new-eye-tracking-apis/> (“*How to Create Accessible Apps and Immersive Game Experiences with New Eye Tracking APIs*”).

²⁸ See Unity, *Documentation: Getting Started* (May 16, 2017), <https://docs.unity3d.com/2018.1/Documentation/Manual/windowsstore-gettingstarted.html>.

As technologies advance, alternative control mechanisms are likely to play a growing role as assistive technologies for gamers with limited mobility. For example, in May, Epic Games released an update to *Fortnite*, its popular online combat game combining elements of crafting and multiplayer action. That update enables gamers to use external programs to remap controller inputs.²⁹

The industry has also continued to explore and implement ACS-related accessibility solutions for individuals who are deaf or hard of hearing. Developers are assessing Microsoft's Game Chat Transcription feature, a set of speech-to-text and text-to-speech APIs that Microsoft began piloting last year, to determine if those APIs would be an appropriate technology to implement in their games.³⁰ Turn 10 Studios and Microsoft have now incorporated Game Chat Transcription functionality into *Forza Motorsport 7*, the latest installment of the popular car racing game franchise.³¹ Other games that have introduced transcription of in-game chat since ESA's last filing include the Windows 10 version of the real-time strategy game *Age of Empires: Definitive Edition*; *Sea of Thieves*, a pirate-themed shared world adventure game for Xbox One and Windows 10; racing game *Forza Horizon 3* for Xbox One; and the Windows 10 version of *State of Decay 2*, an open-world zombie survival game.³²

Importantly, however, implementing game chat transcription is not as simple as flipping a switch. Game developers must assess whether “[speech-to-text accessibility] feature[s] would be

²⁹ Epic Games, *Fortnite: V4.0 Patch Notes*, <https://www.epicgames.com/fortnite/en-US/patch-notes/v4-0> (last visited June 29, 2018).

³⁰ See 2017 Petition for Waiver at 12-13.

³¹ See Forza Motorsport, *Forums: FM7 Release Notes*, https://forums.forzamotorsport.net/turn10_posts912790_FM7-Release-Notes--UPDATED-May--03--2018--10-13-a-m.aspx (last updated June 5, 2018).

³² See 2017 Waiver Order ¶ 14 n.66 (observing that the mid-year report “can note games that have successfully used the Microsoft software development kit for Xbox One and Windows 10 devices”).

effective in their games.”³³ In some cases, this technology might not be a good fit. For example, speech recognition places burdens on processing power, network usage, and battery life, which can be challenging for a variety of games and could be particularly problematic for games played on mobile devices.³⁴ In addition, transcribed speech needs to be displayed on the screen in a manner that does not obscure other important visual information. Speech-to-text/text-to-speech implementations also may be undesirable for certain game genres.

Despite these challenges, the industry continues to evaluate and implement additional options for in-game communications for individuals who are deaf or hard of hearing, and gamers with speech disabilities. For example, developers are creating “communications wheels” that map certain phrases or ideas to an in-game interface for quick selection by the user. In April, Epic Games released a new “Squad Comms” feature for *Fortnite* that implements this concept to enable team members “to communicate quickly without voice.”³⁵ Thus, a user can indicate to her teammates that she has spotted the enemy, or that the team needs materials or resources, without speaking. Because the messages appear in the user interface, this feature also provides a mode of communication that does not rely on hearing.

Similarly, earlier this year, Blizzard Entertainment released an update to its popular team-based first-person action game *Overwatch* that brought communications wheel functionality to console versions of the game.³⁶ Blizzard’s communications wheel implementation makes use of

³³ 2017 Waiver Order ¶ 10 n.46.

³⁴ See, e.g., Apple Developer, *Documentation: Speech*, <https://developer.apple.com/documentation/speech> (last visited June 29, 2018).

³⁵ See Fortnite Team, *Fortnite: V3.5 Patch Notes*, Epic Games (Apr. 11, 2018), <https://www.epicgames.com/fortnite/en-US/news/v3-5-patch-notes>; Exhibit A-2 (screenshot of *Fortnite* Squad Comms feature).

³⁶ Eternity, *Guide to New Communication Options for Console Players*, Blizzard Entertainment (Jan. 10, 2018), <https://us.battle.net/forums/en/overwatch/topic/20760768640> (“Blizzard Guide to New Communications Options”); Exhibit A-3 (screenshot of *Overwatch* communications wheel).

game context to enhance communications that do not rely on hearing or voice. For example, an option on the communications wheel can convey that a player needs an in-game resource. When the player executes this communications command when looking at a teammate who can heal them, the player will say “I need Healing!”, but when the player targets a teammate who can erect defensive fortifications, the player will say “I need a Barrier!”³⁷

Sea of Thieves, released in March, also offers a contextual communications wheel in the form of “Pirate Chat.”³⁸ The Pirate Chat feature enables the user to communicate with other players by selecting among a series of phrases, including phrases that the game recognizes are most likely to be relevant for a given situation.³⁹ Thus, players standing near the ship’s wheel can issue commands to the crew such as “raise the sails,” while players on the ladder of the ship’s crow’s nest can indicate if they are on their way up or down.

B. Video Games Are Successfully Using Accessibility Solutions to Improve Game Play.

The *2017 Waiver Order* also asks the mid-year report to include “examples of games successfully utilizing accessibility solutions.”⁴⁰ The video game industry has continued to incorporate accessibility solutions, including solutions implemented based on feedback and collaboration with the disability community.

³⁷ Blizzard Guide to New Communications Options.

³⁸ Mike Nelson, *A Deep Dive on the Controls for Sea of Thieves on Xbox One and Windows 10*, Xbox Wire (Mar. 16, 2018, 12:30 PM), <https://news.xbox.com/en-us/2018/03/16/sea-of-thieves-controls-feature-xbox-one-windows-10/>; Exhibit A-4 (screenshot of *Sea of Thieves* Pirate Chat feature).

³⁹ Kelly Packard, *Rare Shows Off Sea of Thieves’ Non-Verbal Communication System*, TrueAchievements (Oct. 2017), <https://www.trueachievements.com/n30097/rare-shows-off-sea-of-thieves-nonverbal-communication-system>.

⁴⁰ *2017 Waiver Order* ¶ 14.

As noted above, the industry has released several titles in multiple game genres with features that support in-game communications for individuals without relying on voice or audio. A number of these games also include additional accessibility features that improve game play. *Fortnite* includes subtitles and supports haptic feedback. Moreover, the iOS version of the game implements a game mechanic designed to enhance play without sound. Specifically, the game includes visual indicators associated with relevant in-game sounds. For example, when a player is within a certain distance of an opponent, an icon graphically displays both the intensity and direction of the opponent's footsteps.⁴¹ *Fortnite* also recently added accessibility settings for colorblind post-processing effects, which one reviewer deemed "the most comprehensive colorblind mode I have ever seen."⁴²

In addition, *Sea of Thieves* supports complete custom controller configurations on Windows 10 and Xbox One, allowing players to personalize their setup.⁴³ *Forza Motorsport 7* similarly supports multiple controller configurations.⁴⁴ And *Age of Empires: Definitive Edition* on Windows 10 supports narration of in-game text as well as on-screen game elements by vocalizing the elements when a user hovers a mouse pointer over them.

Several other titles have implemented accessibility solutions designed to facilitate game play in software released since ESA last updated the Commission on the industry's progress.

⁴¹ Charlie Hall, *Fortnite for iPhone Makes Footsteps, Gunfire Visible So You Can Play without Headphones*, Polygon (Mar. 15, 2018, 6:00 PM), <https://www.polygon.com/2018/3/15/17126918/fortnite-iphone-ios-mobile-footsteps-audio-gunfire-indicator-headphone>.

⁴² u/ulfhedinn, *The new color blind mode is amazing.*, Reddit (Mar. 2018), https://www.reddit.com/r/FORTnITE/comments/803f8s/the_new_color_blind_mode_is_amazing/.

⁴³ Mike Nelson, *A Deep Dive on the Controls for Sea of Thieves on Xbox One and Windows 10*, Xbox Wire, (Mar. 26, 2018), <https://news.xbox.com/en-us/2018/03/16/sea-of-thieves-controls-feature-xbox-one-windows-10/>.

⁴⁴ See also Rexly Peñaflorida, *More Accessibility Features Come To 'Forza Motorsport 7'*, Tom's Hardware (Sept. 29, 2017, 7:55 AM), <https://www.tomshardware.com/news/forza-motorsport-7-accessibility-features,35572.html> (describing controller accessibility).

Assassin's Creed Origins is the latest title in Ubisoft's popular *Assassin's Creed* series of action-adventure games.⁴⁵ In March, *Assassin's Creed Origins* received the inaugural Barrier Breaker Award from the Gaming Entertainment Rating System ("D.A.G.E.R.S.")—an online publication dedicated to game accessibility—for features related to audio accessibility.⁴⁶ As D.A.G.E.R.S. explains, *Assassin's Creed Origins* "implemented subtitles in such a way that . . . not only . . . successfully eliminate[d] all barriers for hearing impaired gamers within that specific title, but . . . also created a formula that other developers should seek to emulate when coming up with a system for subtitles."⁴⁷ For example, *Assassin's Creed Origins* provides two presentation options: one to toggle speaker names, and another to toggle a black background behind the text to accommodate situations in which the game's background might otherwise obscure subtitles. According to D.A.G.E.R.S., the way in which *Assassin's Creed Origins* "has started to implement accessibility features" demonstrates that Ubisoft is "committed to trying to make the *Assassin's Creed* universe as accessible as possible."⁴⁸ In addition, although not specifically recognized in D.A.G.E.R.S.' accessibility assessment, *Assassin's Creed Origins* incorporates features to make game play more accessible for individuals with cognitive disabilities, including on-screen guidance.

The PC version of Bethesda Softworks' *Wolfenstein II: The New Colossus*, a first person action game, also received praise from D.A.G.E.R.S. this year, earning an overall rating of

⁴⁵ Ubisoft, *Assassin's Creed Origins*, <https://www.ubisoft.com/en-gb/game/assassins-creed-origins/> (last visited June 29, 2018).

⁴⁶ Josh Straub, *Announcing: DAGERs Barrier Breaker Award*, DAGER System (Mar. 14, 2018), <https://dagersistem.com/announcing-dagers-barrier-breaker-award/>.

⁴⁷ *Id.*

⁴⁸ *Id.*

“Thoroughly Accessible.”⁴⁹ As D.A.G.E.R.S. explains, “Wolfenstein II has fully customizable controls on the PC,” and also implements an “aim assist” function to facilitate hitting targets.⁵⁰ Accordingly, D.A.G.E.R.S. did not “see many problems for gamers with fine motor skill impairments.”⁵¹ *Wolfenstein II: The New Colossus* also includes “many accessibility options . . . for gamers with visual impairments.”⁵² These include colorblind modes and a brightness slider.⁵³

Sony’s acclaimed mythology-based action-adventure franchise *God of War* launched its newest game on April 20, 2018. This game includes robust accessibility features. As one accessibility reviewer explained, “God of War can be practically played with one hand. . . the game’s level of accessibility is through the roof. It’s filled with all sorts of options to tweak and change the game play to improve your experience through this game’s interpretation of Norse Mythology, regardless of a person’s actual physical abilities. From the usual audio and visual tweaks (Sound Volume, Subtitles, Brightness, etc.) to even changing the text size and reducing the camera’s swivel outside of adjusting the camera to re-orient yourself. It’s especially notable that you can re-map the functions of L3 and R3 in God of War to X and Circle respectively, and

⁴⁹ Michael Matlock, *Disability Game Review: Wolfenstein II: The New Colossus*, DAGER System (Feb. 28, 2018), <https://dagersistem.com/all-review-list/disability-game-review-wolfenstein-ii-the-new-colossus/>.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

not at the same time.”⁵⁴ In addition, a recent software update to the game provided further refinements to certain options, such as text size and button remapping based on user feedback.⁵⁵

Monster Hunter: World is an open world role-playing game published by Capcom.⁵⁶ As one recent reviewer with muscular dystrophy observed, the controls for *Monster Hunter* are “wonderfully accessible.”⁵⁷ For example, “every difficult control . . . had an alternative which [the reviewer] could actually press.”⁵⁸ As another review explained, the game is “fully accessible” for gamers who are deaf and hard of hearing.⁵⁹ This is because all dialogue is fully subtitled, and no critical game functions rely exclusively on audio cues for game play.⁶⁰ Moreover, subtitle text size is adjustable, and an update to the game released this spring enables users to similarly adjust the size of text appearing in their heads-up display.⁶¹

Finally, EA has created accessibility guidance and tutorials that build on the accessibility enhancements they have made for several of their popular games. “[G]ameplay without sight is

⁵⁴ Taylor Cross, *An Accessibility Review of God of War (2018 Video Game)*, The Art of Autism (May 30, 2018), <https://the-art-of-autism.com/an-accessibility-review-of-god-of-war-2018-video-game/>.

⁵⁵ See God of War, *Support Update*, <https://godofwar.playstation.com/stories/support-update> (last visited June 29, 2018).

⁵⁶ Monster Hunter World, <http://www.monsterhunterworld.com> (last visited June 29, 2018).

⁵⁷ Patrick Klepek, *How Disabled Payers Are Able to Play Complex Games Like Monster Hunter*, Waypoint (Mar. 5, 2018, 1:00 PM) (citing u/SiddyT, *I’m a New, Disabled, Monster Hunter Player, and the Controls Are Wonderfully Accessible*, Reddit (Feb. 2018), https://www.reddit.com/r/MonsterHunter/comments/7upb7o/im_a_new_disabled_monster_hunter_player_and_the/), https://waypoint.vice.com/en_us/article/neqm5k/disabled-players-monster-hunter.

⁵⁸ u/SiddyT, *I’m a New, Disabled, Monster Hunter Player, and the Controls Are Wonderfully Accessible*, Reddit (Feb. 2018), https://www.reddit.com/r/MonsterHunter/comments/7upb7o/im_a_new_disabled_monster_hunter_player_and_the/.

⁵⁹ Mike Suskie, *Monster Hunter World Review*, GameCritics.com (Feb. 22, 2018), <https://gamecritics.com/mike-suskie/monster-hunter-world-review/>.

⁶⁰ *Id.*

⁶¹ Cody Perez, *Monster Hunter World Update 3.00 Patch Notes: Read All Changes Here*, GameRevolution (Apr. 17, 2018), <http://www.gamerevolution.com/guides/383177-monster-hunter-world-update-3-00-patch-notes-read-changes>.

[already] currently possible for many popular EA titles,” including its popular *Madden NFL*, *NHL*, and *UFC* games, due in part to use of alternate feedback mechanics such as haptics.⁶² This year, EA has released accessibility-specific documentation for each of these franchises, including an accessibility guide for *EA Sports UFC 3* specifically tailored to gamers with visual disabilities, including the blind.⁶³

Beyond documentation, EA has also made a number of general accessibility updates in its games this year. For example, in February, an update to *FIFA 18* added an accessibility settings menu and simplified menu navigation.⁶⁴ *EA Sports UFC 3* also features an accessibility menu, as well as an extra-bland low-flash mode for individuals who are light sensitive, colorblind-friendly menu options, and the ability to turn off controller vibrations.⁶⁵

II. THE VIDEO GAME INDUSTRY HAS ENGAGED WITH THE DISABILITY COMMUNITY, AND WILL CONTINUE TO DO SO.

The *2017 Waiver Order* requested information about the disability-related organizations with which ESA and its members have consulted since the start of the current waiver period, as well as the video game industry’s future plans for outreach, consultation, and engagement.⁶⁶ As the Bureau observed last year, “members of the video game industry have been engaging regularly with the disability community to discuss accessibility solutions for gaming software.”⁶⁷

⁶² GDC, *GDC + VRDC@GDC 2018 Session Scheduler: AAA Gaming While Blind*, <http://schedule.gdconf.com/session/aaa-gaming-while-blind/854733> (last visited June 29, 2018).

⁶³ EA, *Accessibility Resources for Games*, <https://www.ea.com/able/resources> (last visited June 29, 2018).

⁶⁴ Mostafa Hossam, *FIFA 18 Update 1.09 Adds Accessibility Settings, Performs Gameplay Changes and More*, *Gameranx* (Feb. 22, 2018), <http://gameranx.com/updates/id/139573/article/fifa-18-update-1-09-adds-accessibility-settings-performs-gameplay-changes-and-more/>

⁶⁵ See EA, *Accessibility Resources*, *EA Sports UFC 3*, <https://www.ea.com/able/resources/ufc/ufc-3/xbox-one/features> (last visited June 29, 2018).

⁶⁶ *2017 Waiver Order* ¶ 14.

⁶⁷ *Id.* ¶ 11.

Indeed, a recent FCC filing by leading accessibility advocacy groups specifically recognized “the efforts of ESA and its members to dialogue and work with the deaf and hard of hearing and blind and visually impaired communities and gather feedback on their products and services from gamers who are deaf, hard of hearing, blind, visually impaired, or DeafBlind . . . ,” noting that the groups’ work with ESA has resulted in meaningful progress on accessibility.⁶⁸ ESA and its members have also engaged in outreach and consultation in 2018, and will continue to do so.

First, ESA sponsored an accessibility challenge for Global Game Jam 2018, which took place in January.⁶⁹ A “game jam” brings together a multitude of developers to tackle a specific challenge or series of challenges in connection with developing prototypes for games.⁷⁰ The ESA challenge focused on the use of haptics (i.e., providing feedback to the user via vibrations, rumbles, or motions) in order to make the game more accessible for individuals with visual disabilities and/or individuals who are deaf and hard of hearing.⁷¹ ESA created the challenge based on consultation and input from Telecommunications for the Deaf and Hard of Hearing, Inc. (“TDI”), which identified haptics as a promising technology that game developers should continue to explore.

Approximately 70 separate development teams (made up of 348 individuals) joined ESA’s game jam challenge, and several teams developed code for games that used haptics as a primary mode of communication within the game. For example, in one cooperative game involving two participants, players send signals to other players via vibration and feel pulses sent

⁶⁸ Comments on Public Notice of Telecommunications for the Deaf and Hard of Hearing, Inc. et al. at 10, CG Docket No. 10-213 (filed May 3, 2018).

⁶⁹ Global Game Jam, *GGJ18 Diversifiers*, <https://globalgamejam.org/news/ggj18-diversifiers> (last visited June 29, 2018) (“*GGJ18 Diversifiers*”).

⁷⁰ See, e.g., Global Game Jam, *About*, <https://globalgamejam.org/about> (last visited June 29, 2018).

⁷¹ *GGJ18 Diversifiers*.

by other players in order to successfully defeat enemies.⁷² In another game, one player communicates using rumble sequences to successfully guide another player through a VR world,⁷³ while a third game requires players to feel and identify certain sequences of rumble vibrations in order to locate specific objects within a game.⁷⁴ Still other games created by game jam participants require the player to decode a message via controller vibration,⁷⁵ or made the use of rumble an integral and creative part of the storyline.⁷⁶

Video game accessibility also played a prominent role at the industry's 2018 Game Developers Conference ("GDC"), which took place during the week of March 18.⁷⁷ ESA along with members Epic Games, Blizzard Entertainment, Microsoft, Sony, and Ubisoft, among others, sponsored accessibility events hosted by the International Game Developers Association ("IGDA") in conjunction with GDC.⁷⁸ These events included the IGDA Game Accessibility SIG's 2018 Game Accessibility Conference ("GAConf"), a day-long conference that featured discussions on a range of accessibility topics and brought together industry representatives, accessibility advocates, and the developer community.⁷⁹

⁷² Global Game Jam, *Pacific Trans Mission*, <https://globalgamejam.org/2018/games/pacific-trans-mission> (last visited June 29, 2018).

⁷³ Global Game Jam, *Blindspace*, <https://globalgamejam.org/2018/games/blindspace> (last visited June 29, 2018).

⁷⁴ Global Game Jam, *Transmit Home*, <https://globalgamejam.org/2018/games/transmit-home> (last visited June 29, 2018).

⁷⁵ Global Game Jam, *Avians of the Deep*, <https://globalgamejam.org/2018/games/avians-deep> (last visited June 29, 2018).

⁷⁶ Global Game Jam, *Untitled 1.5, a Day in the Life of a Lowly Paid Intergalactic Phone Operator*, <https://globalgamejam.org/2018/games/untitled-15-day-life-lowly-paid-intergalactic-phone-operator> (last visited June 29, 2018).

⁷⁷ Game Developers Conference, <http://www.gdconf.com> (last visited June 29, 2018).

⁷⁸ International Game Developers Association, *IGDA @ GDC 2018*, <https://www.igda.org/page/GDC2018> (last visited June 29, 2018).

⁷⁹ See Eventbrite, #GAconf 18, <https://www.eventbrite.com/e/gaconf-18-tickets-39534586011#> (last visited June 29, 2018).

The GAConf agenda included presentations from individuals with disabilities as well as ESA members on a number of aspects of inclusive game design, such as best practices for visual accessibility, the impact of design choices on cognitive accessibility, methods of game input and control, and experiences of deaf gamers.⁸⁰ In addition, Deputy Bureau Chief Karen Peltz Strauss attended and provided a presentation on the CVAA.⁸¹ GDC also included a number of accessibility events outside of GAConf, including a session by Electronic Arts on AAA game play⁸² while blind,⁸³ a panel discussion on next steps for video game accessibility presented by Ubisoft featuring accessibility advocates/consultants and game developers,⁸⁴ and a game play and disability community reception hosted by Microsoft.⁸⁵

In March, SIE offered product demonstrations to attendees at the CSUN Assistive Technology Conference regarding the PlayStation platform's many accessibility features. Attendees were able to try two of SIE's most popular game titles, *Uncharted 4* and *Lost Legacy*, using specially designed accessibility features.

⁸⁰ GAConf, *Schedule*, <https://www.gaconf.com/schedule/> (last visited June 29, 2018).

⁸¹ GAConf, *The CVAA: What It Means for Gaming Access*, <https://www.gaconf.com/schedule/the-cvaa-what-it-means-for-gaming-access/> (last visited June 29, 2018).

⁸² "AAA" games tend to be complex, high-quality games created by larger development teams. See Brendan Lowry, *The Major Differences Between 'Indie' and 'AAA' Video Games*, Windows Central (Nov. 29, 2017), <https://www.windowscentral.com/indie-vs-aaa-which-type-game-you>.

⁸³ GDC, *GDC + VRDC@GDC 2018 Session Scheduler: AAA Gaming While Blind*, <http://schedule.gdconf.com/session/aaa-gaming-while-blind/854733> (last visited June 29, 2018).

⁸⁴ GDC, *GDC + VRDC@GDC 2018 Session Scheduler: Accessibility in Games: Where We Are and Where to Next (Presented by Ubisoft)*, <http://schedule.gdconf.com/session/accessibility-in-games-where-we-are-and-where-to-next-presented-by-ubisoft/856998> (last visited June 29, 2018).

⁸⁵ Eventbrite, *Gaming and Disability Community Reception 2018*, <https://www.eventbrite.com/e/gaming-and-disability-community-reception-2018-tickets-41261833254#> (last visited June 29, 2018).

On May 7, the Gallaudet University Innovation & Entrepreneurship Institute, TDI, SIE, and ESA hosted an outreach event at Gallaudet's campus in Washington DC.⁸⁶ Approximately 25 guests, including students and faculty at Gallaudet, attended the event to learn more about PlayStation VR,⁸⁷ play some of the latest VR games, and have an extended discussion with representatives from SIE, including a senior engineer who helped develop the PlayStation VR. The event provided an excellent opportunity to learn more about the needs of deaf and hard of hearing gamers, both for VR and non-VR game play experiences.

Finally, ESA continued to conduct outreach as part of its annual E3 trade show in Los Angeles. On June 14, advocates representing the perspectives of a range of individuals with cognitive and physical disabilities attended E3 as ESA's guests.⁸⁸ Throughout the day, ESA facilitated several opportunities for guests to meet with senior executives, producers of games, and accessibility leads at ESA's member companies to share their experiences as gamers and discuss ideas for improved accessibility.

This year, E3 also featured a widely attended panel discussion on accessibility. During that panel, industry representatives underscored the importance of a collaborative approach to developing accessibility solutions, noted the progress inspired by past discussions, and invited the different constituencies within the accessibility community to share their specific needs.

⁸⁶ Eric Kaika, *Gamers Invited to a Private Demonstration by Sony, Feedback Requested for Making Games More Accessible*, Gallaudet University (Apr. 30, 2018, 11:40 AM), <https://my.gallaudet.edu/intranet/announcements-archive/gamers-invited-to-a-private-demonstration-by-sony-feedback-requested-for-making-games-more-accessible>.

⁸⁷ See PlayStation, *PlayStation VR*, <https://www.playstation.com/en-ae/explore/playstation-vr/> (last visited June 29, 2018).

⁸⁸ Attendees included Abe Rafi, Senior Director at The Arc (an advocacy organization for individuals with intellectual and developmental disabilities); "Sightless Kombat," a competitive gamer and accessibility advocate who is blind; Chris "Phoenix" Robinson, a competitive gamer who is deaf and the founder of DeafGamersTV; Eric Kaika, Director of Public Relations at TDI; and Josh Straub, a gamer with limited mobility who is the editor-in-chief of D.A.G.E.R.S.

Gamers with disabilities on the panel offered their views on why games are important to them, and on areas in which the industry could improve their experiences.⁸⁹ Finally, as part of continued efforts to bring together industry and the accessibility community, ESA organized an informal gathering attended by more than 50 representatives from industry and the accessibility community, including the Chairman of SIE's World Wide Studios, Shawn Layden. ESA anticipates continued dialogue with the invited guests and the broader community as a result of the discussions at E3.

Video game companies have also engaged directly with the disability community during the waiver period. For example, Microsoft has set up a permanent laboratory dedicated to inclusive game design.⁹⁰ The lab itself is accessible, and Microsoft intends for it to serve as an “embassy for the gaming and disabilities community” where people in the gaming disability community can “share their open and honest feedback with Microsoft.”⁹¹ As part of its outreach efforts, Microsoft partnered with game retailer GameStop to create a video about the lab,⁹² which GameStop featured in over 7,000 retail stores across the country.

In addition, Microsoft has partnered with the Shepherd Center to create the Accessibility User Research Collective (“AURC”), a community specifically designed to solicit feedback from individuals with disabilities in order to help make Microsoft technology, including video game

⁸⁹ E3 Coliseum 2018: *Accessibility in Games*, June 14, 2018 (Los Angeles), *archived webcast available at* https://www.youtube.com/watch?v=hG_blQIK73U&feature=youtu.be.

⁹⁰ Tara Voelker and Brannon Zahand, *Building an Inclusive Tech Lab: How and Why You Should Too*, GDC Vault, <https://www.gdcvault.com/play/1024924/Building-an-Inclusive-Tech-Lab> (last visited June 29, 2018).

⁹¹ *Id.*

⁹² GameStop TV, *Microsoft's Inclusivity Lab Interview*, YouTube (Feb. 15, 2018), <https://www.youtube.com/watch?v=C3xiJw9P9Y0>.

technology, more accessible.⁹³ For example, active studies at AURC are seeking input from Xbox users with low vision,⁹⁴ as well as gamers who are deaf or hard of hearing who are seeking to provide feedback on Xbox's Text-to-Speech and Speech-to-Text features via tests of *Forza Motorsport 7*.⁹⁵ AURC's work has been promoted by accessibility advocates.⁹⁶

Microsoft held its eighth annual Ability Summit in May to build accessibility awareness, bring together people with disabilities, accessibility specialists, and engineers, and provide Xbox demonstrations of video game assistive technologies and features—including the new Xbox Adaptive Controller.⁹⁷ The following month, Microsoft hosted a one-day inclusive video game boot camp where gamers with disabilities shared their experiences and participated in discussions with Microsoft designers and developers on Microsoft-created accessibility technologies.

In April, Ubisoft worked with AAPEI-EPANOU, a leading French advocacy group for individuals with cognitive disabilities, to obtain feedback on accessibility and usability.⁹⁸ This outreach involved hosting gamers with cognitive disabilities at Ubisoft's development studio, where the gamers provided test feedback for the sequel to Ubisoft's popular action role-playing

⁹³ Accessibility User Research Collective, <https://accessibilityuserresearchcollective.org> (last visited June 29, 2018).

⁹⁴ Accessibility User Research Collective, *Open Studies: Here's a List of All Our Open Studies*, <https://accessibilityuserresearchcollective.org/open-studies/> (last visited June 29, 2018).

⁹⁵ Accessibility User Research Collective, *Are You Deaf or Very Hard of Hearing? We Are Seeking Video Game Players with Hearing Impairment to Provide Feedback on Xbox's Text-to-Speech and Speech-to-Text Features*, <https://accessibilityuserresearchcollective.org/new-cover-page-2-2> (last visited June 29, 2018).

⁹⁶ See, e.g., American Foundation for the Blind, *Microsoft Wants You to Be Part of the Accessibility User Research Collective (AURC)* (Mar. 1, 2018), <http://www.afb.org/community/announcements/microsoft-wants-you-to-be-part-of-the-accessibility-user-research-collective-aurc/12>.

⁹⁷ Ability Summit 2018, *Summary: Microsoft Ability Summit Day 2: Accessibility Product Expo and Disability Inclusion Job Fair*, <https://www.regonline.com/builder/site/default.aspx?EventID=2274717> (last visited June 29, 2018).

⁹⁸ See EPANOU, *L'Association*, <http://www.epanou.org/spip.php?article303> (last visited June 29, 2018).

game *Tom Clancy's The Division*, which is currently being developed. Ubisoft continues to engage regularly with CapGame, a French association dedicated to working on accessibility of video games, to discuss ideas for improved accessibility.

EA has also conducted in-person outreach with members of the disability community in order to obtain feedback on visual accessibility features. Some of this feedback comes from EA's own developers with visual disabilities, including Macular Degeneration.⁹⁹ In addition, as part of an accessibility event at EA's Tiburon studio, EA invited blind gamer Ross Minor to speak and meet with developers.¹⁰⁰ Mr. Minor also assessed a pre-release version of a software update for *Madden 18* which included the game's new "Vision Assists" settings.¹⁰¹

On May 17, SIE celebrated Global Accessibility Awareness Day in its offices and studios around the world. At its headquarters in San Mateo, CA, SIE invited noted accessibility advocate and speaker, Paul Lane, to address employees about the importance of video games and accessibility in the lives of many people with disabilities. At the same event, SIE invited four members of an all deaf *Destiny 2* clan to tell employees how they defeated the hardest part of that game with no audio or speech. These gamers met with a variety of SIE employees to share their insights, ideas, and feedback on a variety of topics including games, peripherals, and consumer support. In collaboration with Activision, SIE set up game play stations where the gamers matched their skills against SIE employees.

⁹⁹ EA Accessibility, *In Their Own Words: Karen Stevens, Software Engineer and Accessibility Lead For EA Sports: Learn more about inclusiveness and accessibility for games like Madden 18*, <https://www.ea.com/able/news/easports-accessibility> (last visited June 29, 2018).

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

Earlier this year, the Capcom Cup, an annual esports game tournament featuring the popular *Street Fighter* franchise, included commentary in American Sign Language.¹⁰²

As the *2017 Waiver Order* also recognized, individual ESA members have engaged with the disability community online.¹⁰³ These engagements likewise continued in 2018. For example, in March, EA launched a new accessibility portal, www.ea.com/able.¹⁰⁴ The EA portal features accessibility resources for games, including accessibility overviews, lists of features, and accessibility game play guides.¹⁰⁵ EA's accessibility portal also includes community discussion forums,¹⁰⁶ as well as the ability to provide accessibility-specific bug reports and other accessibility feedback to EA.¹⁰⁷ In addition, Microsoft has expanded its Disability Answer Desk¹⁰⁸ functionality to enable gamers in the United States with support inquiries related to Xbox account and billing to make those inquiries online via American Sign Language.

ESA members also continue to actively solicit online feedback from members of the disability community. For example, Ubisoft has engaged in outreach on Reddit's Disabled Gamers forum with the goal of seeking input from "as many viewpoints as possible" on game accessibility improvements not already captured in resources such as game accessibility

¹⁰² Luffy (@Louffy086), Twitter (Jan. 11, 2018, 9:34 AM), <https://twitter.com/Louffy086/status/951507685903667201>.

¹⁰³ See *2017 Waiver Order* ¶ 11 n.50 (citing outreach examples cited by ESA, including the use of "online forums to gather feedback from the disability community").

¹⁰⁴ EA Answers HQ, *Accessibility Community*, <https://answers.ea.com/t5/Accessibility/ct-p/accessibility-en> (last visited June 29, 2018).

¹⁰⁵ See, e.g., EA, *Accessibility: Madden NFL 18 Player's Guide for the Blind and Visually Impaired*, <https://www.ea.com/able/resources/madden/madden-18/xbox-one/guides> (last visited June 29, 2018).

¹⁰⁶ See EA Answers HQ, *Accessibility Community*, <https://answers.ea.com/t5/Accessibility/ct-p/accessibility-en> (last visited June 29, 2018).

¹⁰⁷ See EA Answers HQ, *Bug Reports*, <https://answers.ea.com/t5/Bug-Reports/bd-p/accessibility-bug-reports-en> (last visited June 29, 2018).

¹⁰⁸ Microsoft, *Accessibility: Disability Answer Desk*, <https://support.microsoft.com/en-us/accessibility/disability-answer-desk> (last visited June 29, 2018).

guidelines.¹⁰⁹ Other members continue to use social media, online forums, and websites to solicit feedback and suggestions on how to make consumers' game play experiences more accessible.¹¹⁰ This year, these efforts included an online game accessibility event on Reddit's popular "Ask Me Anything" forum in connection with Global Accessibility Awareness Day that featured representatives from Ubisoft along with accessibility advocates and specialists, including prominent disabled gamer Cherry Thompson.¹¹¹ This event was upvoted (i.e. positively rated) by more than 1,600 members of the Reddit community. In May, Microsoft kicked off an online "idea drive" to generate additional ideas for making Xbox hardware and software offerings more accessible.¹¹²

In sum, ESA and its members have conducted substantial outreach to the accessibility community over the past 18 months through various industry and company meetings and events as well as partnering with advocacy groups to support accessibility conferences and events.¹¹³ Engagement between the disability community and the video game industry will continue. For example, Microsoft recently announced that it will host the first-ever Xbox Gaming Tournament at the 2018 Special Olympics USA Games. The event will take place on July 2 in Seattle, Washington, where eight teams consisting of individuals with and without disabilities will

¹⁰⁹ u/UbiCeeCee, *Ubisoft Needs Your Help Re: Games and Accessibility*, Reddit (May 18, 2018), https://www.reddit.com/r/disabledgamers/comments/8kf9bx/ubisoft_needs_your_help_re_games_and_accessibility/.

¹¹⁰ See, e.g., Xbox Ideas, *Accepting Ideas – Ease of Access*, <https://xboxideas.uservoice.com/forums/912157-accepting-ideas-ease-of-access> (last visited June 29, 2018); Nintendo, *Corporate*, <https://www.nintendo.com/corp/accessibility.jsp> (last visited June 29, 2018); Karen Stevens (@ea_accessible), Twitter, https://twitter.com/ea_accessible?lang=en (last visited June 29, 2018).

¹¹¹ u/ianhamilton, *We Work in Accessibility for Gamers with Disabilities, Ask Us Anything!*, Reddit (May 17, 2018), https://www.reddit.com/r/IAmA/comments/8k71b8/we_work_in_accessibility_for_gamers_with/.

¹¹² Savannah, Xbox Program Manager, *Help Make Xbox More Accessible with New Idea Drive*, Microsoft (May 18, 2018, 10:43 AM), <https://news.xbox.com/en-us/2018/05/18/help-make-xbox-accessible-new-idea-drive/>.

¹¹³ See, e.g., 2017 Mid-Year Report at 17-21; 2017 Petition for Waiver at 18-24; *supra* at 14-23.

compete in *Forza Motorsport 7*.¹¹⁴ In addition, ESA members will participate in an upcoming game accessibility conference hosted by the IGDA Game Accessibility SIG that will take place in October in Paris,¹¹⁵ and Ubisoft and Microsoft will sponsor this event.¹¹⁶ The conference will feature accessibility advocates as well as representatives from Microsoft and Sony.¹¹⁷ Similarly, #a11yTOConf, a conference focused on digital accessibility that will take place in October, has announced several presenters, including the Gaming and Disability Community Lead at Xbox along with a range of accessibility advocates and consultants.¹¹⁸ And Ubisoft, which has been working with Accessible Media Inc.¹¹⁹ on an interview addressing accessibility in video games, anticipates that this content will be publicly available soon. The game industry continues to consider ways in which we can extend and build upon its outreach in the months ahead, working more closely with our partners to explore approaches to making games more accessible.

¹¹⁴ See Michael Leri, *Xbox Sponsoring First Special Olympics Video Game Tournament*, Game Revolution (May 22, 2018), <http://www.gamerevolution.com/news/390377-xbox-sponsoring-first-special-olympics-video-game-tournament>. See also Rachel Lerman, *Xbox Gaming Competition is a First for 2018 Special Olympics*, Seattle Times (June 29, 2018), <https://www.seattletimes.com/business/microsoft/xbox-gaming-competition-is-a-first-for-2018-special-olympics/>.

¹¹⁵ GA Conference (@GA_Conf), Twitter (June 19, 2018 11:29 AM), <https://twitter.com/i/web/status/1009141069324271616>.

¹¹⁶ IGDA-GASIG, #GAConf, CNAM, Paris, <https://www.gaconf.com/conference/> (last visited June 29, 2018).

¹¹⁷ See *id.*

¹¹⁸ #a11yTOConf, *Speakers*, <http://conf.a11yto.com/speakers> (last visited June 29, 2018).

¹¹⁹ See generally Accessible Media Inc., <http://www.ami.ca> (last visited June 29, 2018).

CONCLUSION

As the Bureau anticipated, the video game industry has made substantial efforts to improve accessibility and engage with members of the disability community during the first half of the current waiver period. The industry will continue its work on inclusivity innovations for video game software during the balance of the year and in the years ahead.

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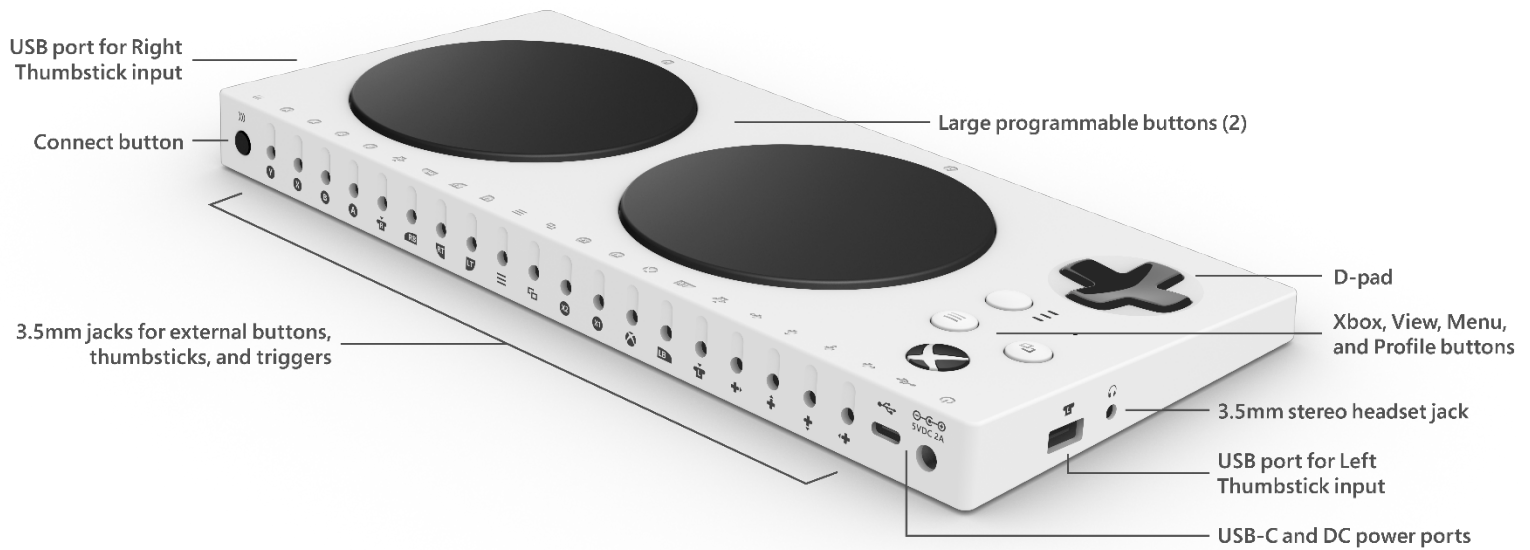


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Exhibit A

Exhibit A-1
Xbox Adaptive Controller



This image of the Xbox Adaptive Controller shows two large circular programmable buttons, USB ports for thumbstick inputs, a directional pad, and various jacks for external buttons, thumbsticks, and triggers.

Exhibit A-2
Screenshot of *Fortnite*



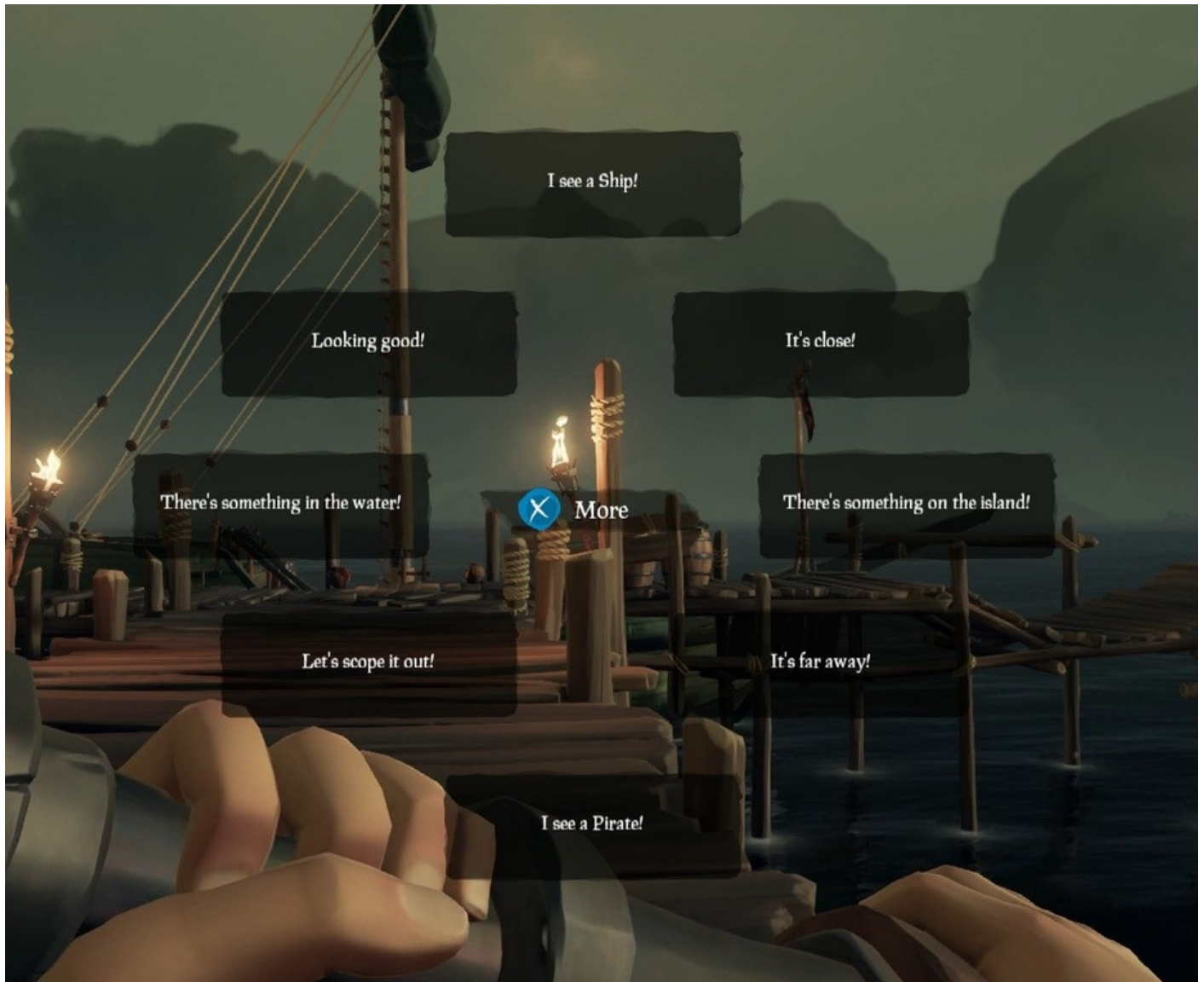
This screenshot depicts *Fortnite*'s "Squad Comms" communications wheel feature, which enables players to communicate with each other quickly and without voice. In the background are various icons related to gameplay. In the center of the screen is a large dark circle with various icons and phrases that a user can select, including "Help!," "Come here," "Follow me," "On my way," "Be right back," "Ready?," "OK," and "Not right now."

Exhibit A-3
Screenshot from *Overwatch*



This screenshot of *Overwatch* depicts an in-game user interface that players can use to communicate with one another. A number of icons and phrases appear in a circle formation on the screen, including “Hello,” “Need Healing,” “Thank,” and “Acknowledge.”

Exhibit A-4
Screenshot of *Sea of Thieves*



This screenshot of *Sea of Thieves* shows the game's use of the "Pirate Chat" communication wheel feature. Eight phrase options appear in a circle formation on the screen, including "I see a Ship!," "It's close!," "There's something on the island!," "It's far away!," "I see a Pirate!," "Let's scope it out!," "There's something in the water!," and "Looking good!" In the middle of the screen is a picture of the "X" button with the word "More."